The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over MROZ et al (RTVR: a flexible Java library for Interactive Volume Rendering) in view of ENGEL et al. (Combining Local and Remote Visualization techniques for Interactive Volume Rendering in Medical applications).

As per independent claim 1, Mroz et al teach a method of interactively visualizing 3D data display comprising a step of displaying data in a 3D data set in an overview mode (3D view; figure 7, page 283), where localization markers can be set, deleted, manipulated and viewed (page 284, column 1, section 3.3, User Interaction) and a step of displaying data in a local mode where data in an interest region surrounding a localization marker are rendered using different display parameters than those of the overview mode (page 281, figure 2; zoomed images are allowed within the display) wherein the localization markers can be set, deleted and manipulated by a user while interactively viewing the data set at any point (page 284, user Interaction; pointing device using a mouse key). It is noted that Mroz' example in figure 2 actually shows the image of the 2D object and therefore, does not show the manipulation of the user's interactive device "within the 3D set" as claimed.

Engel teaches the 3D medical image navigation in which a sub-volume can be arbitrarily selected for display (Engel, figure 9; page 451, column 2, lines 20-23; a

subvolume is selected and rendered). Engel also teaches the 3D transformation of subvolume (page 450, column 2, section 3.2 Local renderer).

Both of the Mroz and Engel references deal with the 3D medical image manipulations in which the 3D image navigation are allowed. Mroz does not show the selection of interest sub-region within the overall 3D model; however, Engel shows that such selection of a interest 3D sub-region is performed under the same mode of the user interactive device. The use of 3D selection operation for an interest sub-region with Mroz' 3D object is just a simple substitution of 2D viewing of example 2 by a 3D view, which Mroz is capable of (Mroz, figure 7, page 283, viewer position, zoom, section view, ...), to yield the selection of interest region in 3D data.

As per dependent claim 2, "the display parameters provide greater detail (Mroz, figure 2; Engel, figures 5, 9).

As per dependent claim 3, "the greater detail includes one of enlargement or display of additional or alternate properties of the data according to a defined representation scheme" (Mroz, figures 2, 7, and c); Engel, figures 5, 9, 12).

As per dependent claim 4, "the different display parameters include a scale change" (Mroz, the adjustment of displayed parameters; 2nd paragraph in section 3.3 User Interaction, page 284).

As per dependent claim 5, "the local mode display uses one of the localization markers or an user-designated point as a center of scaling" (Mroz, page 284, column 1, section 3.3, User Interaction).

As per dependent claim 6, "the local mode display moves the center of scaling to an optimum viewing point in the display (Mroz, the enlerge region in figure 2; Engel, the selected sub_volume, figure 9).

As per dependent claims 7-8, Mroz et al further teaches the features as now claimed at page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450).

As per dependent claim 9, Mroz et al further teaches a step of stepping through local mode displays of all current detail regions (figure 2, arbitrarily select of region); see also, Engel, figure 9).

Claim 10 adds into claim 1 the simultaneous display of local and overview modes with their corresponding parameters (Mroz, page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450).

As per dependent claim 11, Mroz et al further teach wherein the boundaries of a region of interest are controlled by the user in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450.

As per dependent claim 12, Mroz et al further teach wherein the user may set and adjust parameters governing region of interest boundaries globally or specifically to each individual region of interest in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450.

As per dependent claim 13, Mroz et al further teach wherein a user may modify region of interest boundaries in overview mode, in local mode or in both in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters, ang page 284, User Interactive; see also Engel, figure 3, the selection of viewing parameters, page 450.

As per dependent claim 14, in overview mode the localization markers are displayed using an indication icon which would have been obvious in view of Mroz' GUI (page 283, figure 7) or Engel's window interface tools (page 452, figure 6). The arrangements of the tools or icons to perform an operations are well known and regarded as mere design choice (official notice).

As per dependent claim 15, Mroz et al further teach wherein in overview mode, boundaries of the region of interest surrounding each potential localization marker point are displayed such that a user can see what a given region of interest would contain (Mroz, figures 2, 7, and c); Engel, figures 5, 9, 12).

As per dependent claim 16, Mroz et al further teach wherein in overview mode, a localization marker is displayed at point in figures 2, 7, and c); see also Engel, figures 5, 9, 12.

As per dependent claim 17, Mroz et al further teach the features as now claimed in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450.

As per dependent claim 18, Mroz et al further teach wherein the viewing potential region of interest, a user can change its shape in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450.

Claim 19 adds into claim 1 the moving of the sub-region is associated with the moving of cursor which Mroz teaches in the object translation according to the mouse pointer (page 284, user interaction).

As per dependent claim 20, Mroz et al further teach the features as now claimed in figures 2, 7, and c); see also Engel, figures 5, 9, 12.

As per dependent claim 21, Mroz et al further teach wherein-each region of interest associated with each localization marker can gave unique boundaries of arbitrary shape in page 281, column 1, 1st and 2nd paragraphs, the displayed parameters; see also Engel, figure 3, the selection of viewing parameters, page 450.

Claims 27-28 add into claim 1 the data display in sub-local mode which would have been obvious in view of Engel's selection of region within the sub-volume (figures 9 and 12). The selection of display a portion of data within the sub-volume is equivalent to the claimed "sub-local." (official notice).

Claim 29 adds into claim 1 "wherein said user action includes at least one of causing a virtual tool, a cursor, or other indicator to come within a defined distance of a localization marker, and articulating a vocal command" (Mroz, mouse key; page 284, 3.3 User Interaction).

Claims 22-26, 30-31 are similar to claims 1, 2, 13, 17 and 29, Mroz et al further teach a computer program product stored in a computer storage device causing

the computer system to perform such steps claimed in claims 22-26 at the RTVR library in page 282.

The disclosure is objected to because of the following informalities: the claimed "program product" (claims 22-25) has not been positively defined in the Disclosure..

Appropriate correction is required.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phu K. Nguyen/
Primary Examiner, Art Unit 2628